

Docket No.: 12094U (COM)

7

Holloway et al.

Claims showing amendments 2005 December 19

1. (Currently Amended) An aircraft antenna, comprising:

an aerodynamic housing structured for attachment to an outer surface of an

5 aircraft;

a system in the housing, said system having an electromagnetic radiator and

being tuned over a first band of frequencies potentially to produce secondary

radiations in at least a second band of frequencies;

said system having a suppression filter effective at a frequency of the

10 secondary radiations;

said system having a second order matching section for said radiator and  
including a capacitor and a parallel inductance;

said suppression filter being a shielded harmonic suppression filter and  
including one of a low pass filter and a band pass filter.

15 .

2. (Previously Presented) An aircraft antenna as in claim 1, wherein said

secondary radiations include harmonics of frequencies in the first band and the

suppression filter is a harmonic suppression filter of said harmonics.

20 3. (Currently Amended) An aircraft antenna as in claim 25, wherein said filter

sections exhibits a characteristic center frequency within the second band of

frequencies, said filter sections having a first filter section and a second filter

Docket No.: 12094U (COM)

8

Holloway et al.

section, the first of said filter sections having an operating center frequency close to the characteristic center frequency of said filter sections, whereby simultaneous operation of the first filter section and the second filter section form the first band of frequencies having a wider band than said first filter section and said second filter  
5 section.

4. (Previously Presented) An aircraft antenna as in claim 1, wherein said suppression filter is a low pass filter.

10 5. (Previously Presented) An aircraft antenna as in claim 2, wherein said second band of frequencies includes the frequencies of one of GPS e.g. 1575.42 MHz, WSI e.g. 1544.5 MHz, XM Satellite and/or Sirius Satellite e.g. 2332.0-2345 MHz, Globalstar e.g. 2483.5 -2500 MHz and 1610.0-1626.5 MHz, Iridium e.g. 1616-1626.5 MHz, Satcom e.g. 1530-1,559 and 1626.5-1,660.5 MHz.

15

6. (Currently Amended) An aircraft antenna as in claim 5, wherein athe system includes a capacitance compensating inductor at the input of the harmonic suppression filter.

20 7. (Previously Presented) An aircraft antenna as in claim 2, wherein the suppression filter is a band pass filter.

Docket No.: 12094U (COM)

9

Holloway et al.

8. (Canceled) An aircraft antenna as in claim 2, wherein harmonic suppression filter includes discrete components.

9. (Canceled) An aircraft antenna as in claim 8, wherein said harmonic suppression filter includes a distributed component filter.

10. (Currently Amended) An aircraft antenna as in claim 25, wherein said suppression filter includes a circuit board with a plurality of connected conductive traces each forming distributed quarter wave LC circuits and an interconnecting conductive traces forming distributed quarter wave LC impedance inverters.

11. (Previously Presented) An aircraft antenna as in claim 10, said suppression filter includes a circuit board with a three connected conductive traces forming three distributed quarter wave LC circuits and two interconnecting conductive traces forming two distributed quarter wave LC impedance inverters, so as to form a three pole arrangement.

12. (Previously Presented) An aircraft antenna as in claim 1, wherein said system includes a second electromagnetic radiator in the housing and tuned over the second band of frequencies

Docket No.: 12094U (COM)

10

Holloway et al.

13. (Canceled) An aircraft antenna as in claim 12, wherein said second radiator is a patch radiator and said first radiator is a cable radiator.

14. (Original) An aircraft antenna as in claim 12, wherein said second radiator  
5 is a patch radiator and said first radiator is a cable radiator, and said secondary radiations are harmonics of frequencies in the first band.

15. (Previously Presented) An aircraft antenna as in claim 12, wherein said second radiator is a patch radiator and said first radiator is a cable radiator, and said  
10 patch radiator operates at a band of frequencies that includes the frequencies of one of GPS e.g. 1575.42 MHz, WSI e.g. 1544.5 MHz, XM Satellite and/or Sirius Satellite e.g. 2332.0-2345 MHz, Globalstar e.g. 2483.5 -2500 MHz and 1610.0-1626.5 MHz, Iridium e.g. 1616-1626.5 MHz, Satcom e.g. 1530-1,559 and 1626.5-1,660.5 MHz.

15 16. (Original) An aircraft antenna as in claim 12, wherein said housing has an elongated shape to project from the surface of an aircraft and surrounding the cable radiator and a has an inverted cup cover surrounding the patch radiator and the filter at the base of the elongated shape.

20 17. (Canceled) An aircraft antenna as in claim 25, wherein said harmonic suppression filter is a notch filter.

---

Docket No.: 12094U (COM)

11

Holloway et al.

18. (Cancelled) An aircraft antenna as in claim 15, wherein said harmonic suppression filter is a band suppression filter.

5 19. (Canceled) An aircraft antenna as in claim 25, wherein said harmonic suppression filter is a microstrip notch filter.

20. (Currently Amended) An aircraft antenna as in claim 25, wherein said harmonic suppression filter is a microstrip notch filter having a plurality of sections each with lengths of one-quarter wavelength of the frequencies to be suppressed.

10

21. (Previously Presented) An aircraft antenna as in claim 25, wherein said harmonic suppression filter is a third order microstrip notch filter having sections with lengths one-quarter wavelengths of the frequencies to be suppressed.

15 22. (Canceled) An aircraft antenna as in claim 12, wherein said system includes a base orienting said radiators into mutually limited coupled positions.

23. (Previously Presented) An aircraft antenna as in claim 12, wherein said second radiator is a patch radiator and said first radiator is a cable radiator, and said  
20 secondary radiations are harmonics of frequencies in the first band; and  
said patch radiator has a rectangular shape and the filter is placed at the tip of the rectangular shape of the patch radiator.

Docket No.: 12094U (COM)

12

Holloway et al.

24. (Previously Presented) An aircraft antenna comprising:

an aerodynamic housing structured for attachment to an outer surface of an aircraft;

5 a first system in the housing, said first system having an electromagnetic radiator and being tuned over a first band of frequencies potentially to produce secondary radiations in at least a second band of frequencies;

said first system having a suppression filter effective at the frequencies of the secondary radiations;

10 wherein a matching network includes a shorted quarter wave stub connected across the electromagnetic radiator so as to form a DC short circuit across the electromagnetic radiator, the quarter wave being defined as the center of the band of said electromagnetic radiator.

15 25. (Currently Amended) An aircraft antenna, comprising:

an aerodynamic housing structured for attachment to an outer surface of an aircraft;

a system in the housing, said system having an electromagnetic radiator and being tuned over a first band of frequencies potentially to produce secondary  
20 radiations in at least a second band of frequencies;

said system having a suppression filter effective at the frequencies of the secondary ~~radiations~~ radiations;

Docket No.: 12094U (COM)

13

Holloway et al.

said system having a second order matching section for said radiator and including a capacitor and a parallel inductance;

said suppression filter being a shielded harmonic suppression filter;

said suppression filter including a plurality of filter sections.

5

26. (New) An aircraft antenna as in claim 25, wherein said system includes a matching network and said matching network has a shorted quarter wave stub connected across the electromagnetic radiator so as to form a DC short circuit across the electromagnetic radiator, the quarter wave being defined as the center of the band  
10 of said electromagnetic radiator.

27. (New) An aircraft antenna as in claim 1, wherein said system includes a matching network and said matching network has a shorted quarter wave stub connected across the electromagnetic radiator so as to form a DC short circuit across  
15 the electromagnetic radiator, the quarter wave being defined as the center of the band of said electromagnetic radiator.